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**University Examinations 2015/2016**

FOURTH YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

**CIB 3377: SYSTEMS DEVELOPMENT METHODOLOGY**

**DATE: NOVEMBER 2015 TIME: 2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. State **two** important elements of the waterfall methodology (2 Marks)
2. When would you recommend against the use of an agile method for developing a software system? Explain your answer. (4 Marks)
3. With the availability of so many methodologies it can be said that software development is inherently Complex. Explain why this is the case (4 Marks)
4. The waterfall methodology is described as a “document driven” methodology, whereas the spiral model is described as “risk driven” methodology. Answer the following questions regarding these methodologies.
5. What determines when to progress to the next phase or iteration in each methodology

 (3 Marks)

1. How are changes in requirements accommodated in each methodology (2 Marks)
2. Explain why incremental development is the most effective approach for developing business software systems. Why is this methodology less appropriate for real-time systems engineering? (5 Marks)
3. Explain **three** main characteristics of agile methodologies (6 Marks)
4. A company has created a new small business division to develop a special web based marketing system. Approximately 12 persons will be transferred from key areas of the company to form the base for the burnous division. Some 23 additional people will be hired from the outside, the bulk of who are engineers. It has already been decided that object-oriented tolls and approaches will be used with Java as the language. None of the participants has any prior knowledge of these techniques, but all will go through ten days of training when they join. In addition, a partner of the company has just released a new development platform (its first). This will be the development platform of choice. Training is also being scheduled for the new platform. The primary wireless supplier has been having financial difficulties due to cutbacks and has laid off about 35% of its work force. State the best methodology to use and justify your answer. (4 Marks)

**QUESTION TWO (30 MARKS)**

1. Explain the purpose of iteration in the waterfall methodology (2 Marks)
2. Highlight **five** criteria for selecting the appropriate methodology (5 Marks)
3. Discuss how XP methodology relates with the agile principles (5 Marks)
4. A few years ago, sun Microsystems decided to develop and market star office, a set of desktop tools that would be comparable to Microsoft’s Office suite of tools but would be targeted for UNIX rather than Window such a product. What methodology would you use? Justify your answer. (3 Marks)
5. Even if using prototype methodology within the product development process results in a number of advantages, an improper user can lead to damaging the product development instead of aiding it. There exist a number of commonly seen mistakes of using prototype methodology. List five of these mistakes (5 Marks)

**QUESTION THREE (20 MARKS)**

1. Provide an example of a software project that would be amenable to the waterfall methodology (3 Marks)
2. You have been asked to develop a small application that analyses each course offered by a university and report the average grade obtained in the course (for a given semester). What system development methodology would you use. Justify your answer. (3 Marks)
3. A research was conducted and it revealed that the technical issue is not often the major contribution to the failure of the system development project. It is people issues that mainly cause the project failure. Explain three people issues that cause the failure (6 Marks)
4. Explain **two** measures that can be taken by top management to alleviate failure caused by people issues (4 Marks)
5. The manufacturer of a new printer wants to bundle some application software with the printer driver. A software developer has been given the task of writing an application that will allow a user to design CD and DVD labels and print them directly onto the faces of the CDs and DVDs. The developer has chosen to use RAD methodology to develop the application. Justify this choice. (4Marks)

**QUESTION FOUR (20 MARKS)**

1. Explain **four** major differences between scrum and XP Methodology (8 Marks)
2. Most engineers consider evolutionary models to be the best approach to software development in a modern context. Discuss (6 Marks)
3. Explain why, for large systems development, it is recommended that prototypes should be ‘throw-away’ prototypes (6 Marks)

**QUESTION FIVE (20 MARKS)**

1. Explain **four** characteristics of Heavy weight Methodologies (8 Marks)
2. Spiral model is a realistic approach to the development of large-scale systems and software. Justify and explain the model (12 Marks)